UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,524	01/29/2004	Jonathan Paul Patrizio	200314241-1	5514

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EXAMINER
KIM, EUNHEE

ART UNIT	PAPER NUMBER
2123	

NOTIFICATION DATE	DELIVERY MODE
05/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/767,524	PATRIZIO ET AL.
	Examiner	Art Unit	
	Eunhee Kim	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>14 January 2008</u>.

2a)☒ This action is FINAL.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   The amendment filed 01/14/2008 has been received and considered. Claims 1-16 are

presented for examination.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

    1.   Determining the scope and contents of the prior art.
    2.   Ascertaining the differences between the prior art and the claims at issue.
    3.   Resolving the level of ordinary skill in the pertinent art.
    4.   Considering objective evidence present in the application indicating obviousness
            or nonobviousness.

4.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5.   Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart et al.

(US Patent No. 7,107,191), in view of Chao et al. (US Patent No. 6,393,485), and further in view

of Bartlett et al. (US Patent No. 6,137,775).

Stewart et al. teaches (Claims 1 and 10) a computer system and computer implemented

method (Fig. 1) comprising: a simulator (Fig. 1) including:

    a virtual-cluster generator (Fig. 1-4) for generating a first virtual cluster (Fig. 1-4, Col. 3

    lines 52-65, Col. 5 lines 18-28).

Stewart et al. fails to teach explicitly a virtual-failure event selector providing for

selecting a virtual-failure event corresponding to a real-failure event that applies to a real

computer cluster;

    virtual pre-failure configuration corresponding to a real pre-failure configuration of said

real computer cluster; and

    generating a second virtual cluster;

    a virtual post-failure configuration corresponding to a real post-failure configuration that

said real computer cluster would assume in response to said real-failure event.

Chao et al. teaches virtual pre-failure configuration corresponding to a real pre-failure

configuration of said real computer cluster (Col. 14 lines 60-67, Col. 15 lines 32-47);

    a virtual post-failure configuration corresponding to a real post-failure configuration that

said real computer cluster would assume in response to said real-failure event (Col. 9 lines 27-

54, Col. 14 lines 60-67, Col. 15 lines 32-47); and

    generating a second virtual cluster (Col. 9 lines 27-54, Col. 14 lines 60-67, Col. 15 lines

32-47).

Bartlett et al. teaches a virtual-failure event selector providing for selecting a virtual-failure event corresponding to a real-failure event that applies to a real computer cluster (Fig. 5B, Col. 12 lines 50-59).

Stewart et al., Chao et al., and Bartlett et al. are analogous art because they are all related to simulation.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include virtual-failure event of Chao et al. and failure event selector of Bartlett et al., in the method of modular architecture for optimizing a configuration of computer system of Stewart et al., to improve the management of clustered computer system that expands the number of nodes available for failover conditions (Chao et al.: Abstract). Further, Bartlett et al. teaches advantageous of system that ensures complete restoration of all or substantially all of the failed capacity in the telecommunications transport network regardless of the quantity and sequence of spans that fail (Col. 2 lines 16-27)

Stewart et al. teaches (Claim 2) wherein, in said real pre-failure configuration, said real computer cluster runs a software application on a first computer of said real computer cluster and not on a second computer of said real computer cluster (Col. 16 lines 48-52, Fig. 4), and wherein, in said real post-failure configuration, said real computer cluster runs said application on said second computer but not on said first computer (Col. 16 lines 48-52, Fig. 4);

(Claim 3) said real computer cluster (Fig. 1-4) including profiling software (Fig. 2) for providing a descriptive profile of said real computer cluster, said virtual-cluster generator

generating said virtual cluster in said pre-failure configuration using said descriptive profile (Col. 4 lines 10-30, Col. 5 lines 1-40);

(Claim 4) wherein said real computer cluster is connected to said simulator for providing said descriptive profile thereto (Fig. 1-4, Col. 3 lines 60-63);

(Claim 5) an evaluator for evaluating said virtual cluster in its post-failure configuration (Fig. 1-4, Col. 8 lines 31-39);

(Claim 6) a test sequencer (Fig. 1-4, Col. 12 lines 19-62), said test sequencer selecting different virtual-failure events to be applied to said first virtual cluster in said pre-failure configuration so as to result in different post-failure configurations of said virtual cluster (Fig. 1-4, Col. 12 lines 19-62);

(Claim 7) a statistical analyzer for statistically analyzing evaluations of said different post-failure configurations of said virtual cluster (Fig. 1-4, Col. 8 lines 31-39);

(Claim 8) wherein said test sequencer automatically tests different pre-failure configurations of said virtual cluster against different failure events, said statistical analyzer providing a determination of optimum pre-failure configuration by statistically analyzing evaluations of the resulting post-failure configurations (Fig. 1-4, Col. 8 lines 31-39, Col. 12 lines 19-62);

(Claim 9) wherein said simulator is connected to said real computer cluster for providing said determination thereto, said real computer cluster automatically reconfiguring itself as a function of said determination (Fig. 1-4, Col. 8 lines 5-30, Col. 12 lines 62-67);

 (Claim 11) wherein steps a, b, and c are iterated for different configurations of said real computer cluster and for different sets of said predetermined failure types, said method further

comprising providing a recommended configuration for said real computer cluster (Fig. 1-4, Col. 3 lines 52-65, Col. 5 lines 18-28, Col. 8 lines 5-53, Col. 12 lines 19-67);

(Claim 12) gathering profile information about said real cluster in said first configuration, wherein said first virtual computer cluster is generated using said profile information (Fig. 3, Col. 4 lines 10-30, Col. 5 lines 1-40);

(Claim 13) wherein steps a, b, and c are iterated for different configurations of said real computer cluster and for different sets of said predetermined failure types, said method further comprising providing a recommended configuration for said real computer cluster (Fig. 1-4, Col. 3 lines 52-65, Col. 5 lines 18-28, Col. 8 lines 5-53, Col. 12 lines 19-67);

(Claim 14) transmitting said recommendation to said real computer cluster; and implementing said recommended configuration on said real computer cluster (Fig. 1-4).

Stewart et al. fails to teach explicitly (Claim 15 and 16) wherein said type of failure relates to a failure of a network interface or a hard disk interface.

Chao et al. teaches wherein said type of failure relates to a failure of a network interface or a hard disk interface (Col. 9 lines 27-54).

Response to Arguments

6.   Applicant's arguments filed 01/14/2008 have been fully considered but they are not persuasive.

   Applicants have argued that:

[07] Stewart relates to a simulator that predicts the performance of a cluster in a given configuration. <u>Stewart does not disclose or require that the cluster can reconfigure itself in response to a failure</u>. The input to Stewart's simulator is a cluster configuration and the output is a performance rating. The simulator does not output a post-failure or any configuration other than the one being evaluated.

The examiner agrees that "Stewart does not disclose or require that the cluster can reconfigure itself in response to a failure". However, the examiner relies upon the teaching in Stewart to teach a virtual-cluster generator while Chao is relied upon for a teaching of a post-failure. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants have argued that:

  [08] Chao relates to a cluster simulator that accepts a pre- modified configuration and reconfiguration events as inputs and outputs a modified configuration. Chao does not disclose that Chao's simulator accepts virtual failure events as inputs nor does it simulate the response of a cluster to a real failure event.

The examiner disagrees since Chao teaches response of a cluster to a real failure event as invoking recovery service (Col. 15 lines 32-47) when real failure occurs, the recovery service starts virtual failure configuration (cloning the cluster configuration, Col. 14 lines 60-67). The mechanism of real failure generation and insertion is shown in Col. 9 lines 27-54.

Applicants have argued that:

  [12] Bartlett provides for simulating the response of a telephone network to failures involving the cutting of a span (a group of parallel telephone links). Bartlett does not relate to simulation of computer clusters. Even ignoring the differences between computer clusters and telephone networks, there are important abstract differences between Bartlett and the present invention. Bartlett accepts a pre-failure configuration and a failure event as inputs, but the output is a determination of whether or not the telephone system can make a full restoration or not. Bartlett does not disclose that a simulator that outputs a post-failure configuration.

The examiner agrees that "Bartlett does not disclose that a simulator that outputs a post-failure configuration". However, the examiner relies upon the teaching in Bartlett to teach a virtual-failure event selector while Chao is relied upon for a teaching of a post-failure configuration. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants have argued that:

> [14] The Office Action asserts (citing Chao) as a motivation that the proposed combination would expand the number of nodes available for failover conditions. However, Chao does not teach that Chao's simulator affects the number of nodes available for failover conditions. Instead, Chao points to hierarchical clustering as the reason for this advantage.
> [15] Bartlett discloses the use of a failure event selector only in combination with a simulator that indicates whether restoration is successful or not. Bartlett does not disclose that Bartlett's failure selector would work with a performance simulator such as that disclosed by Stewart or a reconfiguration simulator such as that disclosed by Chao. In summary, the motivation for the proposed combination is lacking and the results of the proposed combination would not fall within the scope of any of the pending claims.

In response to applicant's argument that "the motivation for the proposed combination is lacking and the results of the proposed combination would not fall within the scope of any of the pending claims", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicants have argued that:

[16] <u>New Claims 15 and 16 add limitations relating to specific types of failure events that are not disclosed in any of the references.</u> These claims are patentable over the art of record a fortiori as they depend from allowable claims and in view of their non-anticipated additional limitations.

The examiner disagrees as Chao teaches network interface failure in Col. 9 lines 30-37.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunhee Kim whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eunhee Kim/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123